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ANNUAL DISTRICT REPORTS: FOREST INSECT AND DISEASE SURVEY; PRAIRIE REGION, 1973

by:

J. K. Robins, V. B. Patterson, G. N. Still, F. J. Emond, E. J. Gautreau, R. C. Tidsbury, J. Petty, G. J. Smith, R. M. Caltrell and J. P. Susut

INFORMATION REPORT NOR-X-73

Northern Forest Research Centre

Edmonton, Alberta

March, 1974

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NORTHERN FOREST RESEARCH CENTRE
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CANADIAN FORESTRY SERVICE
ENVIRONMENT CANADA
5320-122 Street
EDMONTON, ALBERTA, CANADA
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INTRODUCTION

by

J. K. Robins

The trend towards a more problem oriented survey was continued in 1973 with increased emphasis on surveillance in high use areas such as intensively managed forests, parks and recreation areas and urban and rural plantings. Red Belt investigations were continued in the Alberta foothills. An assessment of insect and disease damage to regeneration lodgepole pine in cut-over areas was conducted in the Hinton area of Alberta and a number of air and landspill pollution problems were investigated. A stepped up program of training and liaison was carried out in support of federal, provincial and municipal agencies responsible for tree pest programs. Winter work on a number of manuscripts pertaining to forest pests was continued.

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* All personnel of the Insect and Disease Survey, Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, 5320-122 Street, Edmonton, Alberta, Canada.

Field Staff Assignments

A number of changes in field assignments were made in 1973. Ranger Supervisor J. Petty was moved from Alberta to Saskatchewan and was replaced by Supervisor V. B. Patterson who was moved from Manitoba. K. L. Mortenson who supervised activities in Saskatchwan in 1972 was transferred to Ottawa and was replaced by a former Ranger Supervisor F. J. Emond who assumed duties in Manitoba. The responsibility for surveys in the Yukon Territory was transferred to the Pacific Forest Research Centre in Victoria. Assignments for 1973 were as follows:

Manitoba

District 1.	Eastern Manitoba	G. N. Still
District 2.	Western Manitoba	F. J. Emond (Supervisor)

Saskatchewan

District 3.	Southern Saskatchewan	R. C. Tidsbury
District 4.	Northeastern Saskatchewan	E. J. Cautreau
District 5.	Western Saskatchewan	J. Petty (Supervisor)

Alberta

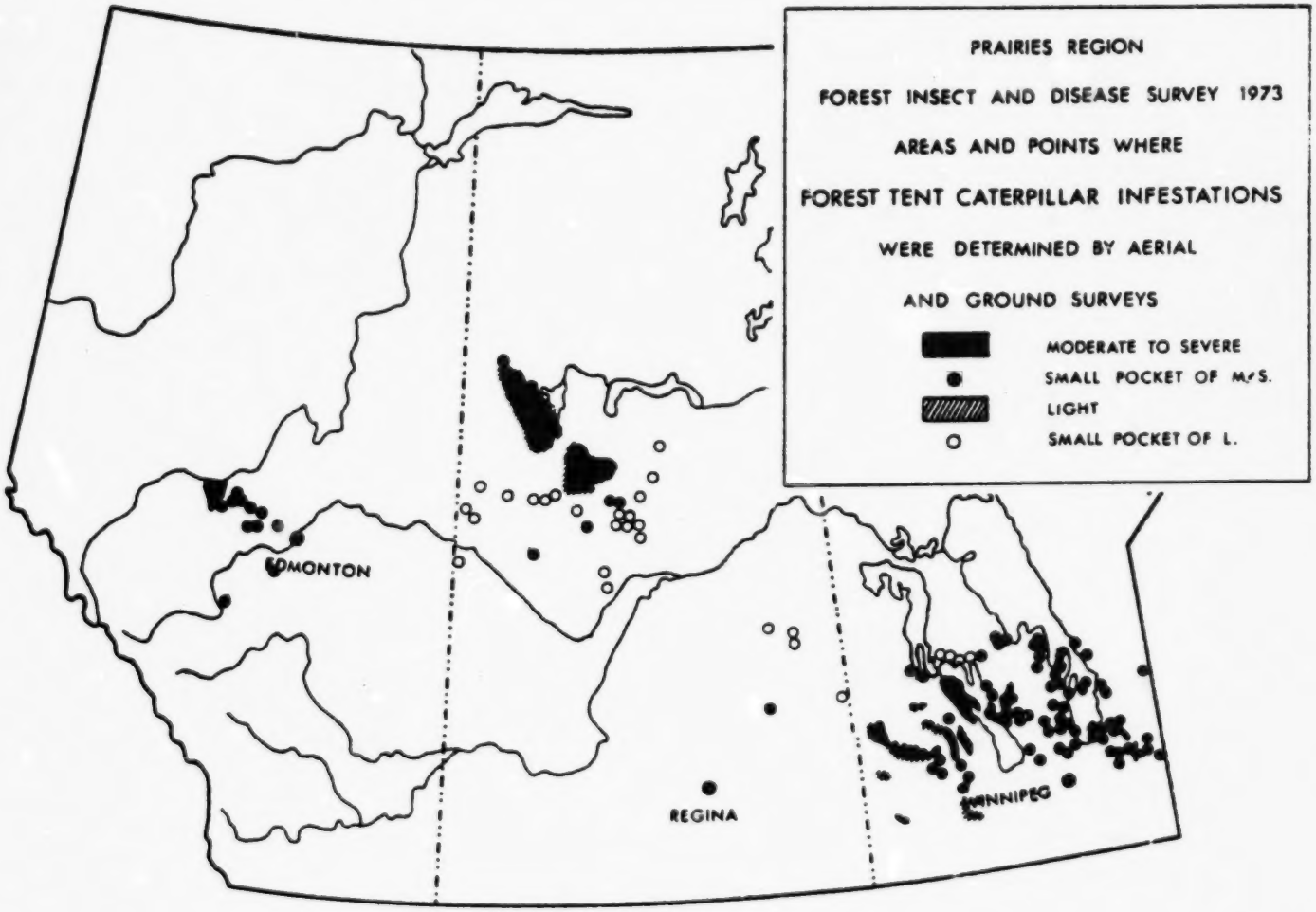
District 6.	Southern Alberta	G. J. Smith
District 7.	Northeastern Alberta	V. B. Patterson (Supervisor)
District 8.	Central Alberta	J. P. Susut
District 9.	Northwestern Alberta and N.W.T.	R. M. Caltrell

SUMMARY OF INSECT AND DISEASE CONDITIONS

There was no notable change in the status of the more important insects and diseases in the Region in 1973. Forest tent caterpillar populations continued to rise in Manitoba and Saskatchewan at less than the expected rate while remaining static in Alberta. Large aspen tortrix populations declined. The yellow-headed spruce sawfly was again a significant pest of planted spruce. The spruce budworm caused severe defolication of white spruce in the Spruce Woods Provincial Park and Forest and at scattered locations in the Interlake Region of Manitoba. Needle rusts of spruce and foliage diseases of poplars caused spectacular discoloration of foliage at many locations in the Region.

PRAIRIES REGION

Number	District
1	Eastern Manitoba
2	Western Manitoba
3	Southern Saskatchewan
4	Northeastern Saskatchewan
5	Western Saskatchewan
6	Southern Alberta
7	Northeastern Alberta
8	Central Alberta
9	Northwestern Alberta
10	Northern Manitoba
11	Northern Saskatchewan
12	Northwest Territories


PRAIRIES REGION
FOREST INSECT AND DISEASE SURVEY 1973
AREAS AND POINTS WHERE
FOREST TENT CATERPILLAR INFESTATIONS
WERE DETERMINED BY AERIAL
AND GROUND SURVEYS
MODERATE TO SEVERE
SMALL POCKET OF M/S.
LIGHT
SMALL POCKET OF L.
EDMONTON
REGINA
WINNIPEG

ANNUAL DISTRICT REPORTS, 1973 - MANITOBA

by

F. J. Emond and G. N. Still

INSECT CONDITIONS

Fall Cankerworm, Alsophila pometaria (Harr.)

Moderate to severe defoliation of Manitoba maple, white elm, green ash, bur oak and associated deciduous hosts, occurred sporadically along the Red River from Emerson north to Selkirk.

Severe infestations were well distributed throughout the Greater Winnipeg area and extended west along the Assiniboine River to the vicinity of St. Francois Xavier. Aerial and ground spraying was conducted in attempts to control defoliation in Winnipeg. Severe damage also occurred in Selkirk and at the north end of Selkirk Park.

Moderate to severe defoliation of farm shelterbelts was noted in the Winkler, Morden, Jordan, Rosenfeld and Homewood areas and along the Riviere aux Marais between Letellier and Halbstadt. Light to moderate defoliation was reported on ash, elm and maple in Dauphin, Portage La Prairie and Brandon. Scattered pockets of similar damage were noted in shelterbelts 6 miles south of Ste. Rose du Lac, 3 miles west of Portage la Prairie and along the Assiniboine River Valley in Brandon.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Population levels of this species in Manitoba generally declined from that reported in 1972.

In eastern Manitoba, scattered, moderate to severe defoliation was noted in the following areas: Otter Falls, Pinawa and along the Big

Whiteshell Road in Whiteshell Provincial Park; 10 miles east of East Baintree; along the Bird River; at the north end of Agassiz Provincial Forest; and in Birds Hill Provincial Park.

In western Manitoba similar defoliation was evident in Spruce Woods Provincial Forest and Park and near Reed Lake in Grass River Provincial Park. Pockets of light to moderate damage were noted along the Trans-Canada Highway between Sidney and Douglas, west of Virden to within one mile of the Saskatchewan Border, in Duck Mountain Provincial Forest, near Iskwasan Landing in Grass River Provincial Park, and from The Pas north to Flin Flon. Low populations were reported in Porcupine Provincial Forest, from Birch River north to The Pas, in Riding Mountain National Park and in Turtle Mountain Provincial Park.

Medium to high populations of a leaf tier, Pseudexentera oregonana Wlshm., were commonly associated with the large aspen tortrix in Spruce Woods Provincial Forest and in the Virden-Saskatchewan Border infestations. This insect was estimated to have accounted for at least 30 per-cent of the total damage in each area.

Spruce Budworm, Choristoneura fumiferana (Clem.)

High populations were again evident in Spruce Woods Provincial Forest and Park. Moderate to severe defoliation was common in all areas inspected and some top killing and branch flagging was noted.

An experimental aerial and ground spray operation was conducted in early June, under the auspices of the Manitoba Provincial Government and Environment Canada, to help curb defoliation.

In the Interlake area, moderate to severe infestations on white spruce in farm woodlots persisted for the seventh consecutive year in the Sylvan-Arborg-Riverton area. Dead tops and branch die-back were observed in many areas.

East of Silver Bay and Dog Lake, and between Ashern and Mulvihill, spruce stands sustained moderate to severe damage for the second consecutive year. Similar infestations persisted in farm woodlots 11 miles east of Ashern, near Poplarfield, Rembrandt, Meleb, and in the Fisher Branch-Hodgson area.

New outbreaks of moderate to severe damage were detected east of Husavick and Sandy Hook and in the Moosehorn area.

In the remainder of the Interlake area, low populations were noted in most spruce stands examined.

Jackpine Budworm, Choristoneura pinus pinus Free.

In the Sandilands Provincial Forest, moderate to severe infestations persisted in young pine stands approximately 1.5 miles east of Menisino, near Piney Fire Tower, and in older stands west of Wampum and Vassar. Light damage was noted in the Woodridge, Sandilands, Marchand, Richer Tower, Dawson Cabin and Hadashville areas, and at several other points throughout the remainder of the Reserve.

In the Belair Provincial Forest, population levels decreased from that reported in 1972. Light damage was reported north of Stead, in the Gull Lake area, and near Belair.

Low populations were noted at scattered points in the Northwest Angle and Agassiz Provincial Forests, in Whiteshell Provincial Park, near Rosenberg and Red Rose fire towers, in the Mantagao Lake and Manigotogan areas, in Spruce Woods Provincial Forest, and near Shilo.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Marked population increases were evident generally across the Province.

In eastern Manitoba, the Lake Manitoba "Narrows" infestation increased in intensity and size. Severe defoliation was recorded in an area bounded on the west by Dauphin Lake, Ste. Rose du Lac, St. Amelie, and Alonsa, on the east by Lake Manitoba, and extending across the "Narrows" to the Ashern and Mulvihill area.

Numerous, widely scattered patches of light, moderate and severe defoliation occurred throughout the Interlake area from Melnice, Gunton and Lake Francis in the south to the Jackhead Indian Reserve, Sturgeon Bay and Homebrook areas in the north. Similar damage occurred on Hecla, Black, Punk, Deer, Moose and Little Moose Islands in Lake Winnipeg.

In the Belair Provincial Forest, patches of moderate to severe defoliation occurred northwest and southeast of Jackfish Lake; near the junction of Highways 59 and 11, and along the east side of Lake Winnipeg from Gull Lake to Balsam Bay. In Grand Beach Provincial Park severe defoliation occurred near the east gate.

Scattered patches of moderate to severe defoliation were evident along Highway 44 in the Agassiz Provincial Forest, and throughout that portion of the Forest lying north of the highway.

In Whiteshell Provincial Park, continuous severe defoliation extended along Natalie, Eleanor, Dorothy and Nutimik Lakes. Scattered patches of severe damage were evident south of George Lake, on some islands in Whiteshell Lake, and in the Point du Bois area.

Patchy, severe defoliation occurred east of the Winnipeg River system from Highway 211 north to Fort Alexander.

Patches of moderate to severe defoliation were observed along Highway 304 between the Sandy River and Manigotogan Settlement. Isolated patches of severe defoliation were reported by Provincial Conservation Officers between Manigotogan and the Bloodvein Indian Reserve, and southwest of Aikens Lake.

Intermittent, light to severe defoliation of ornamental trees occurred in the Greater Winnipeg area. Low populations were noted in Birds Hill Provincial Park.

In western Manitoba, population levels increased considerably in Riding Mountain National Park and the adjacent agricultural areas to the south and west. Moderate and severe damage was very much in evidence in the following areas: along the east slopes of the Park from northwest of McCreary south to Riding Mountain; from the Wasagaming Campground south to Onanole; in a 3 to 5 mile wide "strip" adjoining the south boundary of the Park from Onanole west to the Rossburn area; from the junction of Provincial Roads 476 and 254 north to Petlura and west of these points to Inglis and Leonard. Light to moderate damage was evident along the northeast slopes of the Park from the North Gate southeast to the Laurier area. Scattered, light damage was noted in the Clear Lake Campground.

Patchy, moderate and severe defoliation was noted north and south of Winnipegosis, between Ste. Rose du Lac and Ochre River, between

McCreary and Glenella, south of Sandy Lake, along the Minnedosa Valley north to Erikson, near Mountain Road and along the Trans-Canada Highway between Oak Lake and Virden. Isolated patches of light to moderate defoliation were evident east and west of Valley River, in the Birtle area, two miles north of Glenboro and at numerous locations throughout Spruce Woods Provincial Forest and Park.

The large aspen tortrix, Choristoneura conflictana (Wlk.), was also present in most areas where the forest tent caterpillar occurred, but damage attributed to this species was considered to be secondary.

Sequential samples were taken in various areas of the Province to determine egg abundance. Refer to Table I for results of the samples taken and the degree of defoliation expected in 1974.

TABLE I

RESULTS OF SEQUENTIAL SAMPLING AND
DEFOLIATION ESTIMATES FOREST TENT CATERPILLAR

Location	Defoliation 1973	Predicted Defoliation 1974
Birds Hill Provincial Park:		
Campground area	Light	Light
Riding Stables area	Light	Light
Whiteshell Provincial Park:		
Falcon Beach	Light	Light
Caddy Lake	Nil	Nil
Hanson Creek (Hwy 44)	Light	Light
White Lake	Moderate	Moderate
Big Whiteshell Road	Moderate	Moderate
Otter Falls	Severe	Severe
Grand Beach Provincial Park:		
Campground	Severe	Severe
Beaconia	Severe	Severe
Hecla Provincial Park:		
Gull Harbour	Severe	Severe
Hecla	Severe	Severe

Sequential Sampling (continued)

Location	Defoliation 1973	Predicted Defoliation 1974
Agassiz Provincial Forest:		
Seddons Fire Tower	Severe	Severe
Milner Fire Tower	Severe	Severe
Camp Morton	Severe	Severe
Dog Lake	Severe	Severe
Eriksdale	Severe	Severe
Glenboro	Light	Light
Onanole	Severe	Severe
Shergrove	Severe	Severe

Balsam Fir Sawfly, Neodiprion abietis complex

Slight population increases were evidenced in many areas in eastern Manitoba.

Moderate to severe defoliation of balsam fir occurred in the Beaver Creek area and in Hecla Provincial Park. Light damage was noted through Grand Beach and Whiteshell Provincial Parks and in the Bissett, Wallace Lake, and Manigotogan areas.

Yellow-head Spruce Sawfly, Pikonema alaskensis (Roh.)

Populations of this sawfly remained at approximately the same levels as that reported in 1972.

In Riding Mountain National Park, moderate to severe damage was noted on planted spruce in Wasagaming Townsite, at the junction of Highway 10 and the Lake Audy Road and on individual native regeneration along Highway 10

between Wasagaming and Moon Lake. Light to moderate damage was reported on mature white spruce in and around Clear Lake Campground and on planted spruce in the Wilson Creek Watershed area.

Light to moderate damage to planted spruce was noted at the following widely separated points; Dauphin, Dauphin Lake Provincial Campsite, Onanole, Swan River, Oak Lake, Virden and Brandon. Light damage was evident in Birch River, in the Birch River Campground, near Bowsman, 21 miles south of Virden, in Souris, Melita, the Peace Gardens, Turtle Mountain Provincial Park, Neepawa and Minnedosa.

In eastern Manitoba, moderate to severe defoliation of roadside regeneration and ornamental spruce was noted in the Moose Lake, St. Labre, West Hawk, Betula Lake, Nutimik, Seven Sisters and Beaver Creek areas.

Wind Damage

Unusually high winds, at times reaching a velocity of 72 mph, were experienced in early July in the Riding Mountain National Park area and in southeastern Manitoba. Extensive blowdown and twisting off of both conifers and deciduous trees resulted.

In Riding Mountain National Park, a ground survey was conducted along Highway 10 from the Park golf course through to the north boundary and from the junction of Highways 10 and 19 through to the East Gate. The main species affected were white spruce and trembling aspen although damage to other species was noted in both areas examined. Refer to Table II for results of blowdown survey.

TABLE II

SUMMARY OF WIND DAMAGE SURVEY WHICH OCCURRED IN RIDING MOUNTAIN NATIONAL PARK, 1973

Survey No.	Location	Blowdown number	
		Conifers*	Deciduous**
1	Each side of Hwy. 10 from the golf course through to the north entrance of Park.	113	115
2	Each side of Hwy. 19 from its junction with Hwy. 10 through to the east entrance of Park.	69	65

* Conifers composed of approximately 90 percent white spruce, 10 percent black spruce.

** Deciduous trees composed of approximately 95 percent trembling aspen, 5 percent white birch.

In southeastern Manitoba, trembling aspen and jackpine were the species most frequently affected. Trembling aspen was most susceptible to breakage, while jackpine was more frequently uprooted. Damage was particularly evident in Whiteshell Provincial Park and the Northwest Angle and Sandilands Provincial Forests.

Considerable branch breakage of boulevard elm, ash and maple was reported in Dauphin, Minnedosa, Neepawa and Brandon.

Some factors evidenced which are believed to have contributed to trembling aspen failures were poplar borers, Saperda spp.; Hypoxylon canker, Hypoxylon mammatum (Wahl.) Miller; and a white trunk rot, Fomes igniarius (L. ex Fx.) KicKx.

OTHER NOTEWORTHY INSECTS AND DISEASES

Organism	Host	Remarks
INSECT		
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce B. spruce	Low populations in Agassiz and Spruce Woods Forests and in Whiteshell Provincial Park.
Cooley spruce gall aphid, *Adelges cooleyi* Gill.	W. spruce	Low and medium populations noted in Whiteshell and Spruce Woods Provincial Parks and in Riding Mountain National Park.
Pineapple gall aphid, *Adelges Lariciatus* (Patch)	W. spruce	Light infestations in the Mantagao Lake area and north of The Pas.
A flea beetle, *Altica populi* Brown	B. poplar	Light damage in Roblin area.
Ugly-nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	Widely scattered throughout the Province.
Oak webworm, *Archips fervidanus* (Clem)	B. oak	Low populations in Birds Hill Provincial Park.
Solitary leaf miner, *Cameraria hamadryadella* (Clemens)	B. oak	Common in Spruce Woods Provincial Forest.
Pear slug, *Caliroa cerasi* (L.)	Cotoneaster	Severe skeletonizing in plantings along Highway I between St. Anne and Portage la Prairie, in Winnipeg, Selkirk and Birds Hill Provincial Park.
Ash flower gall, *Eriophyes fraxinflora* (Felt)	G. ash	Moderate to severe infestations near Faloma Beach, Whitemouth, Pine Falls, Seven Sisters, and Grand Beach.
Wooly elm aphid, *Eriosoma americanum* (Riley)	W. elm	Light damage in south half of eastern Manitoba.

A sawfly twig gall, *Euura* sp.	Willow	Medium to high population in Grand Beach Provincial Park.
European alder leaf miner, *Fenusa dohanii* (Tischb.)	Alder	Patchy moderate to severe damage along Highway 304 between O'Hanley River and Manigotogan, in Hecla Provincial Park and near Wallace Lake.
American aspen beetle, *Gonioctena americana* (Schaeff.)	T. aspen	Scattered light to severe defoliation of saplings and regeneration in Agassiz, Duck Mountain, Sandilands and Belair Provincial Forests. Light damage in Whiteshell Provincial Park.
A root collar weevil, *Hylobius* sp.	S. pine	Significant numbers of girdled and dying trees noted in Agassiz and Sandilands Provincial Forests.
Fall webworm, *Hyphantria cunea* (Drury)	Deciduous spp.	Widely scattered, isolated webbed trees noted in eastern part of the Province.
Aspen blotch miner, *Lithocolletis salicifoliella* Cham.	T. aspen	Light, moderate and severe damage in Whiteshell Provincial Park and Sandilands Provincial Forest. Light damage in Agassiz Provincial Forest, near Mantagao Lake and in Birds Hill and Grand Beach Provincial Parks.
A leaf miner, *Lyonetia* sp.	Willow	Light, moderate and severe damage noted from Clearwater Provincial Park north to Flin Flon. Especially prevalent in Grass River Provincial Park.
Prairie tent caterpillar, *Malacosoma californicum lutenscens* (N. & D.)	Chokecherry	Widely scattered tents noted in southern Manitoba and in Riding Mountain National Park.
Western tent caterpillar, *Malacosoma californicum pluviale* Dyar	W. birch Willow B. oak Pincherry	Low populations observed in Whiteshell and Birds Hill Provincial Parks and near Wallace Lake, Wadhope and Mantagao Lake.
A sawfly, *Monophadnoides* sp.	Rose	Moderate to severe leaf skeletonizing in plantings between St. Anne and Winnipeg.
Spruce spider mite, *Oligonychus ununguis* (Jac.)	W. spruce	Medium to high populations on ornamentals in the Moose Lake, Piney, Tyndall and Headingly areas. Low populations in Riding Mountain National Park.

Spring cankerworm, *Paleacrita vernata* (Peck)	M. maple A. elm	Usually associated with the fall cankerworm. Some damage between Emerson and Selkirk and in Portage la Prairie and Dauphin.
White pine weevil, *Pissodes strobi* (Peck)	J. pine	Common in young pine stands in eastern Manitoba.
Pine needle scale, *Phenacaspis pinifoliae* (Fitch)	B. spruce W. spruce	Moderate to severely infested trees noted at West Hawk Lake and in Grand Beach Provincial Park. Light in Northwest Angle Provincial Park.
Larch sawfly, *Pristiphora erichsonii* Htg.	Tamarack	Severe defoliation in The Bog area. Scattered light to moderate damage north of The Pas. Low populations in eastern Manitoba.
Poplar leaf roller, *Pseudexentera oregonana* Wlshm.	T. aspen	Commonly associated with large aspen tortrix infestations. Especially notable in Spruce Woods Provincial Forest and near Elkhorn.
Aspen webworm, *Tetralopha aplastella* Hlst.	T. aspen	Common in most aspen stands in eastern Manitoba.
Pine tortoise scale, *Toumeyella numismaticum* P. & M.	J. pine	Light damage to fringe trees in Grand Beach Provincial Park campground.
Cottonwood leaf mining beetle, *Zeugophora scutellaris* Suffr.	Plains cottonwood	Light to severe damage in Winnipeg and Birds Hill.
DISEASE		
Spruce needle rust, *Chrysomyxa* spp.	B. spruce	Moderate to severe infections in many young stands throughout eastern Manitoba.
Spruce needle rust, *Chrysomyxa ledicola* Lagh.	B. spruce W. spruce	Spotty, moderate to severe infections in the Cat Lake, Hodgson, Cranberry Portage, Reed Lake, and The Pas areas.
Yellow witches' broom, *Chrysomyxa arctostaphyli* Diet.	B. spruce	Occasional brooms through Whiteshell and Hecla Provincial Parks; Northwest Angle Provincial Forest; and in the Mantagao Lake area.
Poplar ink spot, *Ciborinia whetzellii* (Seaver) Seaver	T. aspen	Light leaf infections in Northwest Angle Provincial Forest.

Pine needle rust, *Coleosporium asterum* (Diet.) Syd.	J. pine	Some moderate to severe needle infections on young trees in Northwest Angle and Agassiz Provincial Forests. Light in Riding Mountain National Park and in the Onanole, Cowan, Mafeking, and Winnipegosis areas.
White pine blister rust, *Cronartium ribicola* J. C. Fischer	W. pine	Branch flagging observed near Falcon Lake and in Northwest Angle Provincial Forest.
Cytospora canker, *Cytospora chrysosperma* (Pers.) F.	Hybrid poplar	Significant dieback of ornamental trees in the Winnipeg and Birds Hill areas.
Globose gall of poplars, *Diplodia tumefaciens* (Shear) Zalasky	B. poplar	Numerous galls on some trees in the campground in Grand Beach Provincial Park.
Globose gall rust, *Endocronartium harknessii* (J. P. Moore) Y. Hiratsuka	J. pine S. pine	Occasional moderately to severely infected jackpine through Sandilands and Agassiz Provincial Forests and in Grand Beach Provincial Park. Scattered light infections throughout the range of jackpine in eastern Manitoba and in Riding Mountain National Park. Common on scots pine in Sprucewoods Provincial Forest.
White trunk rot, *Fomes igniarius* (L. ex. Fr.) Kickx.	T. aspen	Infected mature trees frequently noted in camping areas in Whiteshell, Birds Hill, Grand Beach, and Hecla Provincial Parks; in Northwest Angle Provincial Forest, and at Wanipigow Lake.
Hypoxylon canker of aspen, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Cankered trees observed in campgrounds in Whiteshell, Grand Beach, Birds Hill, and Hecla Provincial Parks and at Mantagao Lake.
Balsam poplar leaf blight, *Linospora tetraspora* Thompson	B. poplar	Scattered light to severe leaf infections frequently observed in eastern Manitoba.
Needle cast, *Lirula macrospora* (Hartig) Darker	Spruce	Light to moderate needle infection of some young trees in Northwest Angle Provincial Forest.

Needle cast, *Lophodermium laricinum* Duby	Tamarack	Light needle infection common in many stands examined in eastern Manitoba. Some moderate infection of understory trees north of Pine Falls.
Larch-willow rust, *Melampsora paradoxa* Diet. et. Holw.	Willow	Moderately infected clumps frequently sighted along Highway #304 between Powerview and Wallace Lake.
Yellow witches' broom, *Melampsorella caryophyllacearum* Schroet.	B. fir	Occasional brooms common in southeastern Manitoba.
Fir needle rust, *Pucciniastrum epilobii* Otth.	B. fir	Some light to moderately infected trees in the Cat Lake area; north of The Pas; along Reed Lake; and near Flin Flon.
Spruce needle rust, *Pucciniastrum* sp.	W. spruce	Moderate infection in the Wilson Creek watershed, R.M.N.P.
Aspen shoot blight, *Venturia macularis* (Fr.) E. Muell. & V. Arx.	T. aspen	Some moderate to severe shoot damage through Whiteshell Provincial Park. Sporadic light infections common through eastern Manitoba; in Riding Mountain National Park; and in the Winnipegosis, Cowan, Swan Rive and Flin Flon areas.

ANNUAL DISTRICT REPORTS, 1973 - SASKATCHEWAN

by

J. Petty, E.J. Gautreau, R.C. Tidsbury

INSECT CONDITIONS

Poplar Bud-gall Mite, Aceria parapopuli (Keifer)

The incidence of this mite was common on hybrid poplar ornamentals and shelterbelts, particularly throughout southwestern Saskatchewan.

Moderate to severe infestations were recorded in the Eastend, Maple Creek, Stewart Valley, Herbert, Davidson, Moose Jaw, Drinkwater areas and in Thomson Lake Regional Park. Moderate infestations of new galls were recorded on a few trembling aspen and balsam poplar at the Moosomin Trans-Canada Highway Campground and Manitou Regional Park.

A low incidence of galls was common on trembling aspen in the following regional parks: Canwood, Martin's Lake and Sandy Beach Lake.

Fall Cankerworm, Alsophila pometaria (Harr.), Spring Cankerworm, Paleacrita vernata (Peck)

High populations of cankerworms caused severe defoliation of a number of Manitoba maple, American elm and green ash used as shade trees in Prince Albert and Saskatoon and in farm shelterbelts in the Melfort area.

Moderate to severe defoliation of Siberian elm, American elm and Manitoba maple was recorded in the Maple Creek and the Eastend - Dollard - Shaunavon areas and to a few trees in Woodlawn Regional Park.

Light defoliation was common in many shelterbelts of the southern agricultural area of Saskatchewan and in the following northeastern localities: Wakaw, Humboldt, Watson, Wadena, Preeceville and Hudson Bay.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Populations of large aspen tortrix decreased considerably from that reported in 1972. Pockets of severe defoliation of trembling aspen and white birch occurred in a wide band along the Churchill River System from Sandy Lake east to the Reindeer River and south to Highway 106. Between Highway 106 and the Saskatchewan River, defoliation was light and scattered except along the south side of Namew Lake where it was severe. Patches of moderate to severe defoliation occurred in the Lestock area. Low to medium populations were present in association with other leaf rollers in the Moosomin and Fleming areas.

The severe infestation in the Pasqua Hills that was reported in 1972 collapsed in 1973.

Throughout the remaining aspen belt areas of the Province, low numbers of larvae were present but no appreciable defoliation was observed.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Infestations of forest tent caterpillar were more widespread in northwestern Saskatchewan in 1973 than in the year previous and the extent of the areas of moderate and severe defoliation were larger. Pockets of light, moderate and severe defoliation occurred in a band approximately 45 miles wide extending from the north end of Peter Pond Lake southeast to Sanctuary Tower in Prince Albert National Park. Outside this general area colonies of larvae were noticed in the following localities: La Ronge, Montreal Lake, Weyakwin Lake, southern part of Prince Albert National Park, Anglin Lake, Emma Lake, Candle Lake, Nipawi Provincial Park, between Shell Lake and Leask, the Green Lake - Meadow Lake area, Meadow Lake Provincial Park, Ministikwin Lake and Sandy Beach Lake Regional Park.

In the eastern part of the Province, moderate to severe defoliation was recorded in the Beaver Hills south of Sheho and Tuffnell. Very low populations were present in Duck Mountain and Greenwater Provincial Parks and in the Porcupine Provincial Forest.

An egg band survey carried out in late fall was aimed primarily at areas of high use, provincial parks and Prince Albert National Park to ascertain the degree of infestation in 1974. A few areas where moderate to severe defoliation occurred in 1973 were included in the survey. Results of this survey are shown in Table I.

TABLE I

Results of Sequential Sampling and Defoliation Estimates
Forest Tent Caterpillar, 1973

Location	Defoliation 1973	Predicted Defoliation 1974
Meadow Lake Provincial Park:		
2.5 mi north Goodsoil	Nil	Nil
Kimball Lake	Nil	Nil
Jct. Highway 4 & 224	Nil	Nil
Waterhen Lake Road	Nil	Nil
Flotten Lake (north end)	Nil	Nil *
18th Baseline along Hwy. 104	Moderate	Severe
Beauval	Light	Light
7 mi. south Beauval Hwy 55	Light	Moderate
Dore Lake	Severe	Severe
Michel Pt.	Severe	Severe
Sled Lake	Severe	Severe
1 mi. north Big River	Severe	Moderate
3 mi. south Big River	Nil	Nil
Spiritwood	Nil	Nil
Christopher Lake	Light	Light to Moderate
Namekus Lake, P.A.N.P.	Nil	Nil
2.5 mi. north Anglin Lake	Nil	Light
Greenwater Provincial Park	Nil	Nil
Goodspirit Provincial Park	Nil	Nil
2 mi. north Wroxton	Nil	Nil
Duck Mountain Provincial Park	Nil	Nil

* egg bands seen although not present in sequential sample.

Bruce Spanworm, Operophtera bruceata (Hulst)

Moderate to severe defoliation of trembling aspen was recorded in the east part of Moose Mountain Provincial Park. The most extensive defoliation was in the area between the north boundary and the main entrance of the Park and west of Highway 9 for about 4 miles. High populations occurred on individual trees 4 miles west of Little Kenosee Lake, along an oil road north of Gillis Lake and along the Cannington Lake Road.

A patch of moderate defoliation one-half mile in length was observed along Highway 9, three miles south of the park.

Light defoliation was noted in aspen bluffs between Moose Mountain Provincial Park and Moosomin.

A predaceous beetle, Calosoma frigidum (Kby.) was common throughout the areas where high populations of spanworm were present.

Yellow-headed Spruce Sawfly, Pikonema alaskensis (Roh.)

In 1973 this sawfly was once again sufficiently abundant to cause moderate to severe defoliation to plantation and ornamental spruce in many localities. The greatest concentration of infestations was in the agricultural area from Debden-Shellbrook-Prince Albert and Wakaw east to Nipawin, Hudson Bay and Porcupine Plain. Moderate to severe defoliation was also recorded in the Big River, Foam Lake, Tuffnell, Canora, Ebenezer and Moosomin areas, south of Biggar and in the following Provincial Parks: Moose Mountain, Buffalo Pound and Rowan's Ravine.

Moderate damage to individual trees was noted at Madge Lake in Duck Mountain Provincial Park, Memorial Lake and York Lake Regional Parks, Besant Trans-Canada Highway Campground, Indian Head Tree Nursery and in the Crooked Lake, Watrous, Kenaston, Davidson, Qu'Appelle and Plenty areas.

Defoliation was light in shelterbelts in the agricultural areas north of North Battleford and Lloydminster and to natural grown regeneration in Meadow Lake Provincial Park.

In Prince Albert National Park, a notable increase in spruce sawfly populations was evident. Defoliation of regeneration white spruce was moderate to severe in localized areas along road sides in the Waskesiu Lake area and south to Halkett Lake.

Spruce Terminal Weevil, Pissodes strobi (Peck)

The spruce terminal weevil is a serious pest of ornamental spruce in various parts of central Saskatchewan. Light to moderate terminal feeding occurred in the Department of Natural Resources Tree Nursery near Prince Albert. A field inspection of the Honeywood Tree Nursery near Parkside revealed that approximately 70 percent of all ornamental Colorado spruce were infested. Many of the trees were so severely damaged that they had to be destroyed. Severe infestations were also reported in plantations south of Prince Albert and near Shellbrook.

Low infestations on native white and black spruce were reported in Prince Albert National Park, Brightsand and Meeting Lake Regional Parks and along Highway 4 between Glaslyn and Meadow Lake.

DISEASE CONDITIONS

Spruce Needle Rust, Chrysomyxa sp.

Spruce needle rust was widespread throughout northern Saskatchewan in 1973. In general infections were light, although reports of moderate and severe infections on white and black spruce were received from Montreal Lake, Canoe Lake, Keeley Lake and between

Meadow Lake and Glaslyn. Infections in these areas were on a few individuals or small groups of trees rather than over a specific area.

Fire Blight, Erwinia amylovora (Burrill) Winslow

Fire blight was much more prevalent on ornamental fruit trees in central and southern Saskatchewan than in previous years. Reports of severe infections were received from the following areas: Moose Jaw, Mossbank, Broadview, Prince Albert and Saskatoon. An inspection of a tree nursery near Parkside revealed a severe infection had occurred in that area and several ornamental crab and apple trees had to be destroyed. Light infections were also evident on some mountain ash growing in the nursery. Another tree nursery in Saskatoon destroyed several fruit trees which had become infected with fire blight.

Herbicide damage

Many shelterbelts in Saskatchewan sustained damage as a result of the use of herbicides to control weeds in nearby field crops. Reports of moderate to severe damage caused by aircraft spraying 2-4-D came from Birch Hills, Outlook and Moose Jaw areas.

In the early spring a large quantity of 2-4-D was spilled near the western outskirts of Moosomin. The fumes, carried by the prevailing winds, apparently caused moderate damage to the foliage of Manitoba maple as it developed throughout the spring and early summer.

Non Infectious Diseases

Abnormal weather conditions during the year had varying effects on tree growth in many areas. The following conditions were recorded in 1973:

Wind damage

Unusually persistent high winds in June and early July caused light to moderate damage to the foliage of deciduous ornamental and shelterbelt trees and to native trembling aspen. The most notable injury occurred in the Prince Albert, Wakaw, Melfort, Greenwater Lake, Last Mountain Lake and Moose Jaw areas. Considerable breakage to trees from high winds in early June was reported from Moose Mountain Provincial Park.

Severe wind and hail damage to shade trees and shelterbelts occurred in Yorkton and surrounding areas in late August.

Winter drying

In the late winter of 1972-73 light to moderate damage occurred to planted conifers in the following areas: Prince Albert, Spruce Home, Christopher Lake and Meath Park.

Deciduous trees, in particular Manchurian elm, in shelterbelts of west-central Saskatchewan had moderate branch mortality. Areas where this damage was most conspicuous were North Battleford, Rosetown and Kindersley. Although branch mortality was prevalent no tree mortality was observed.

Precipitation

Moisture conditions varied considerably throughout Saskatchewan during the season and had notable effect on trees within the Province. Southwestern areas experienced a very dry summer while excessive rain fall caused flooding in the north-central area. In the dry areas windburn

occurred and newly transplanted trees suffered from insufficient water. Where excessive rainfall occurred the high water caused erosion and subsequent tree damage around the shoreline of lakes in many recreational areas.

Spring frost

Light damage was caused by spring frosts in the Saskatoon and Mossbank areas.

OTHER NOTEWORTHY INSECTS AND DISEASES

Organism	Host	Remarks
INSECT		
Black headed budworm, *Acleris variana* Fern.	W. spruce	Low populations in Cypress Hills Provincial Park and Prince Albert National Park.
Spruce gall aphids, *Adelges* spp.	W. spruce	Very low populations on native spruce in 1973. Light damage to ornamentals at Kamsack and Codette.
Leaf miner, *Agromyza* sp.	A. elm	Light damage common throughout southern Saskatchewan.
Ugly nest caterpillar, *Archips cerasivoranus* Fitch	Chokecherry	Low populations in Battleford Provincial Park, Memorial Lake Regional Park and in the Prince Albert district.
Pine tube maker, *Argyrotaenia tabulana* Free.	J. pine	Light damage to regeneration in Nesbit Provincial Forest.
Birch skeletonizer, *Bucculatrix canadensisella* Cham.	W. birch	Present in native stands of birch in northern Saskatchewan. Infestations were lighter than in 1972.
A predator beetle, *Calosoma fridgidum* Kby.	T. aspen	Numerous adults throughout the Bruce spanworm infestation in Moose Mountain Provincial Park, and where large aspen tortrix was present near St. Walburg, Edam and Maidstone.

Pear slug, *Caliroa cerasi* Linn.	Cotoneaster	Severe infestation on ornamentals in Weyburn, Regina, Moose Jaw, Saskatoon and Prince Albert.
Scurfy scale, *Chionaspis furfura* Fitch	Cotoneaster Willow	Moderate to severe damage to cotoneaster hedges in Melfort. High populations on native willow near the potash mine at Guernsey.
Spruce budworm, *Choristoneura fumiferana* Clem.	W. spruce	Populations low in Cypress Hills Provincial Park and very low in mature stands in the areas of Cumberland, Namew and Amisk Lakes.
Aspen leaf beetle, *Chrysomela crotchi* Brown	T. aspen	Light to moderate defoliation of regeneration in Moose Mountain Provincial Park.
Cottonwood leaf beetle, *Chrysomela scripta* F.	Poplar spp.	Moderate damage to ornamental and shelterbelt trees in Danielson Provincial Park and Maple Creek Trans-Canada Highway Campground. Light damage in Duck Mountain Provincial Park.
Box-elder leaf gall midge, *Contarinia negundifolia* Felt	M. maple	Light to moderate damage common throughout the agricultural areas of southern Saskatchewan.
Chokecherry midge, *Contarinia virginianiae* Felt	Chokecherry	Common in southern Saskatchewan.
A lace bug, *Corythucha* spp.	Chokecherry	Moderate infestations causing notable discoloration in southern Saskatchewan.
Green rose chafer, *Dichelonyx backi* Kby.	T. aspen	Patches of moderate defoliation in Cypress Hills Provincial Park.
Spruce coneworm, *Dioryctria reniculella* Grt.	W. spruce	Light damage in Battleford Provincial Park and along Battle Creek in Cypress Hills Provincial Park.
A leaf tier, *Enargia decolor* Wlk.	T. aspen	Low populations in the aspen belt of central Saskatchewan.

Woolly elm aphid, *Eriosoma americanum* Riley	A. elm	Light to moderate infestations in agricultural areas in the southern part of the Province.
Ash flower gall, *Eriophyhes fraxiniflora* Felt	G. ash	Moderate populations on some trees in Buffalo Pound Provincial Park, Maple Creek, and Marieval Recreation Area at Crooked Lake. High populations at Fort Qu'Appele.
Birch leaf miner, *Fenusa pusilla* Lep.	W. birch	Caused severe discoloration of planted and native trees in Prince Albert and Saskatoon.
Lilac leaf miner, *Gracillaria syringella* Fabr.	Lilac	Common on ornamentals in Prince Albert, Saskatoon, Regina and Moose Jaw.
American aspen beetle, *Gonioctena americana* Schaef.	T. aspen	Generally low populations. Pockets of moderate to severe defoliation of regeneration near La Ronge, St. Walburg, Brightsand Lake, Pearce Lake in Meadow Lake Provincial Park, south of Piapot and throughout Cypress Hills Provincial Park.
European fruit lecanium, *Lecanium coryli* Linn.	A. elm C. ash	Severe infestation on a few trees near Milden.
Willow leaf miner, *Lyonetia* sp.	Willow	Population increase evident in central and northern parts of the Province. Moderate to severe discoloration of willow occurred in the Cumberland Lake, Lac La Ronge, Reindeer Lake areas, between Buffalo Narrows and Beauval and north of Meadow Lake Provincial Park to Canoe Lake.
Nuttall blister beetle, *Lytta nuttalli* Say	Caragana	Low populations at Indian Head Tree Nursery and in the Outlook area.
Prairie tent caterpillar, *Malacosoma californicum lutescens* N. & D.	Chokecherry Rose	Numerous tents in Nesbit Provincial Forest west of Prince Albert and north of the South Saskatchewan River between Beechy and Kyle.

		Low populations were present near Spruce Lake, Edam, Delmas, Battlefords Provincial Park and Besant Trans-Canada Highway Campground.
Western tent caterpillar, *Malacosoma californicum pluviale* Dyar	D. birch	High populations in muskegs south of Molanosa and along the Churchill River east of Otter Rapids.
Ash mirid, *Neoborus amoenus* Reut.	G. ash	Widely distributed throughout agricultural areas of southern Saskatchewan and caused moderate damage.
Balsam-fir sawfly, *Neodiprion abietis* Harr.	W. spruce	Low populations at Flotten Lake in Meadow Lake Provincial Park, south of Makwa and north of Green Lake.
Owlet moth, *Nycteola cinearana* N. & D.	B. poplar	Populations low in Prince Albert National Park and Bright-sand Lake Regional Park.
Spiny elm caterpillar, *Nymphalis antiopa* L.	Poplar sp. A. elm	Light defoliation at Namekus Lake in Prince Albert National Park, Crooked Lake, Rowans Ravine Provincial Park and in the Outlook area.
Spruce spider mite, *Oligonychus ununguis* Jac	W. spruce Col. spruce	Populations very low in 1973 probably due to heavy rainfall in most areas.
A fruit worm, *Orthosia hibisci* Gn.	Poplar spp. Alder Willow	Small area of moderate defoliation south of Ministikwin Lake.
Pitch nodule maker, *Petrova albicapitana* Busck.	J. pine Scots pine	Low incidence in Canwood Regional Park. A high percentage of regeneration jack pine in a plantation near Prince Albert had leaders infested with one or more larvae. Light infestation in Indian Head Tree Nursery.

Pine needle scale, *Phenecaspis pinifoliae* Fitch	W. spruce	Light to moderate infestations in a few shelterbelts in the Indian Head and Davidson areas. Severe on some ornamental spruce in Prince Albert and Moose Jaw.
Leaf folding sawfly, *Phyllocolpa* sp.	Poplar spp.	Light to moderate damage common on regeneration and shelterbelts throughout southern Saskatchewan.
Poplar serpentine miner, *Phyllocnistis populiella* Cham.	T. aspen	Low populations in Memorial Lake and Sandy Beach Lake Regional Parks.
Gall aphids on conifers, *Pineus pinifoliae* Fitch		Low incidence near Flotten Lake in Meadow Lake Provincial Park and south of Makwa.
Pine terminal weevil, *Pissodes terminalis* Hopk.	J. pine	Populations generally low. Light damage to regeneration in Nesbit Provincial Forest.
Balsam shoot-boring sawfly, *Pleuroneura borealis* Felt	B. fir	Light damage near Flotten Lake in Meadow Lake Provincial Park.
Larch Sawfly, *Pristiphora erichsonii* Htg.	Tamarack S. larch	Low populations were present in northeastern Saskatchewan, Prince Albert National Park and 20 miles south of Beauval. Light defoliation in Battleford Provincial Park and Indian Head Tree Nursery.
A sawfly, *Profenusa* sp.	Hawthorn	Moderate to severe leaf mining on a few trees at Indian Head Tree Nursery.
Boxelder twig borer, *Proteoteras willingana* Kft.	M. maple	Moderate to severe damage on a few trees in Echo Valley Provincial Park. Low populations throughout southern Saskatchewan.
Poplar leaf roller, *Pseudexentera oregonana* Wlshm.	T. aspen	Low populations common in the aspen belt of west-central Saskatchewan. Medium population recorded east of Maidstone and in association with large aspen tortrix in the Moosomin-Fleming area. High populations were present east of Rosetown.

Gray willow-leaf beetle, Pyrrhalta decora (Say)	T. aspen	Moderate defoliation to regeneration west of Makwa and along Highway 55 three miles south of its junction with Highway 124. Low populations in Meadow Lake Provincial Park, Silver Lake Regional Park and in the Edam, St. Walburg, Lloydminster and Ministikwin Lake areas.
Poplar borer, Saperda calcarata Say	T. aspen	Common in a number of regional parks of west-central Saskatchewan.
Spruce needle miner, Taniva albolineana Kft.	W. spruce	Moderate infestations on ornamental trees in Melfort, Gallivan and Swift Current.
Black-headed ash sawfly, Tetheda cordigera Beauv.	G. ash	Moderate infestations in Battleford Provincial Park and south of Biggar. Low in Kindersley Regional Park and in the Milden-Sovereign, Tyner-Plato and Cando areas.
A pyralid moth, Tetralopha sp.	T. aspen	Common in regional parks of west-central Saskatchewan.
Pine tortoise scale, Toumeyella numiscmaticum Petitt & Med.	J. pine	Found on occasional tree in Nesbit Provincial Forest. Infestations generally light but a few severely infested trees were recorded.
Cottonwood leaf mining beetle, Zeugophora scutellaris Suffr.	Poplar spp.	Moderate damage at Diefenbaker Lake, Saskatoon, Kerrobert, Stony Beach and Keeler. Light damage common in shelterbelts and on ornamentals in the southern part of the Province.

DISEASE

Dwarf mistletoe, Arceuthobium americanum Nutt. ex. Engelm.	J. pine	Low incidence in Canwood Regional Park; hyper-parasites, Wallrothiella arceuthobii (Pk.) Sacc. & Collectotrichum gloesporioides Penz. Sensu Arx present.

Spruce cone rust, *Chrysomyxa pirolata* Wint.	B. spruce W. spruce	Low incidence in the following areas; MacDowall, Prince Albert, Montreal Lake, Hudson Bay, Brightsand Lake Regional Park and Prince Albert National Park.
Poplar ink spot, *Ciborinia whetzellii* (Seaver) Seaver	T. aspen	Small patch severe infection on north side of Waskesiu Lake in Prince Albert National Park. Light to moderate infections common in Duck Mountain Provincial Park.
Shothole of cherry, *Coccomyces hiemalis* Higgins	Chokecherry Pincherry	Severe infections in Prince Albert area, Moosomin Trans-Canada Highway Campground and the Indian Head Tree Nursery.
Comandra blister rust, *Cronartium comandrae* Pk.	J. pine	Low incidence in Meadow Lake Provincial Park.
Sweet fern blister rust, *Cronartium comptoniae* Arth.	J. pine Myrica gale	Light infections on pine along Highway 102 north of La Ronge. Severe infections on alternate host throughout northern Saskatchewan.
Leaf spot, *Drepanopeziza populorum* (Desm.) Hohn.	T. aspen	Pockets of moderate to severe infection common throughout the aspen and mixedwood forests of northern Saskatchewan.
Globose gall rust, *Endocronartium harknessii* (J. P. Moore) Y. Hiratsuka	J. pine	Low incidence recorded at Peck Lake, Canwood Regional Park and along the Narrows Road in Prince Albert National Park.
White trunk rot, *Fomes igniarius* (L. ex Fr.) Kickx	T. aspen	Low incidence in Prince Albert National Park, Battlefords Provincial Park and Meeting Lake Regional Park.
A leaf spot, *Gnomonia ulmea* (Schw.) Thum	Siberian elm	Low intensity and incidence in Buffalo Pound Provincial Park.
A leaf rust, *Gymnosporangium clavipes* Cooke & Peck	Hawthorn	Low intensity and moderate incidence at Dunnet and Pine Cree Regional Parks and in Moose Jaw Wild Animal Park.

A needle cast, *Hypodermella* sp.	J. pine	Severe infections on regeneration along the Elaine Lake Road east of Smoothstone Lake and in the La Loche area.
Hypoxylon canker, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Common in aspen stands of west-central Saskatchewan. Incidence generally low but dead tops and some mortality evident in high-use areas of regional parks.
Balsam poplar leaf blight, *Linospora tetraspora* Thompson	B. poplar	Moderate to severe on regeneration fringe trees in many areas of central and west-central Saskatchewan.
Larch-willow rust, *Melampsora paradoxa* Diet. et Holw.	Willow	Severe infections in Brightsand Lake Regional Park.
Leaf spot, *Phaeoramularia maculiocola* (Rom. & Sacc) Sutton	T. aspen	Moderate to severe incidence in native stands in the eastern part of the Province. Low in Meadow Lake Provincial Park and near Parkside.
Needle cast, *Phaeoseptoria contortae* J. A. Parnelee & Y. Hiratsuka	J. pine	Small area of moderate infection at Mile 14 along 57 Trail in Prince Albert National Park. Light to moderate infections on individual trees between Canoe Lake and Meadow Lake Provincial Park.
Needle rust, *Pucciniastrum* spp.	W. spruce	Low intensity and incidence in Cypress Hills, Duck Mountain and Good Spirit Provincial Parks and York Lake Regional Park.
Needle cast, *Sarcotrichila balsameae* (Rehm.) Karf	B. fir	Severe on a small group of fir near Flotten Lake in Meadow Lake Provincial Park.
Leaf spot, *Septoria caraganae* (Jacz.) Died	Caragana	Common in agricultural areas between Rosetown and Swift Current, east to Regina and north to Saskatoon.

Leaf spot, *Septoria musiva* Pk.	B. poplar	Patches of high incidence in Duck Mountain Provincial Park. Moderate infections in Meeting Lake Regional Park and between Shellbrook and Big River. Light in Martin's Lake Regional Park.
Leaf spot, *Septoria populicola* Pk.	B. poplar	High incidence of infection in the cottage area at Good Spirit Provincial Park.
Aspen shoot blight, *Venturia macularis* (Fr.) E. Muell & V. Arx.	T. aspen, Hybrid poplar	Commonly occurred on regeneration throughout much of the aspen belt. Infections were generally light with the occasional small patch of moderate infection.
Shoot blight of balsam poplar, *Venturia populina* (Vuill) Fabric.	B. poplar	Moderate intensity and low incidence in Duck Mountain Provincial Park.

ANNUAL DISTRICT REPORTS, 1973

ALBERTA AND NORTHWEST TERRITORIES

by

V. B. Patterson, R. M. Calltrell, J. P. Susut and G.J. Smith

INSECT CONDITIONS

Forest tent caterpillar, Malacosoma disstria Hbn.

Populations of the forest tent caterpillar were much the same as in 1972 in the Wabamum and Lac Ste. Anne areas. Patchy, severe defoliation was observed from three miles east of Darwell Corner on Highway 16 west to Gainford and north to Isle Lake. Pockets of severe defoliation were recorded along Highway 43 between Gunn and Mayerthorpe.

In the Whitecourt area defoliation was more severe than in 1972 in a 220 square mile area bounded on the north by Whitecourt and Blue Ridge, and on the south by Hattonford and Ronan.

Moderate defoliation was recorded in the area north of Stony Plain surrounding Kettle and Mere Lakes and south and west of Cameron Lakes.

Patches of moderate to severe defoliation were observed northeast of Medicine Lake and in the Willesden Green oilfield 18 miles northeast of Rocky Mountain House.

On the west slopes of the hills east of Pigeon Lake, a two square mile area was severely defoliated.

TABLE I

Results of Sequential Sampling and Defoliation
Estimates Forest Tent Caterpillar

Location	Defoliation 1973	Predicted Defoliation 1974
Sandy Lake	Nil	Nil
Thunder Lake Provincial Park	Light	Light
Alberta Beach	Nil	Nil
Wabamum Lake Provincial Park	Light	Light
Pembina River Provincial Park	Light	Light
Wolf Creek	Nil	Nil

Yellow-headed spruce sawfly, Pikonema alaskensis (Roh.)

Population levels and the extent of defoliation to spruce by this defoliator were again high throughout much of the agricultural area north of Calgary. Defoliation of planted spruce occurred within one area bounded roughly by Calgary, Cold Lake, Lac La Biche and Carrot Creek and another area bounded by Grande Prairie, Valleyview, Joussard, Peace River and Clear Prairie. Defoliation ranged from light to severe in both areas. In the northern area, populations were high in Winagami and Moonshine Provincial Parks.

In previous years, defoliation was usually confined to white spruce in shelterbelts and urban plantings and to regeneration white spruce along road allowances. In 1973, black spruce was also affected in many areas. Severe damage occurred along Highway 16 from Gainford to Carrot Creek; in the Westlock-Barrhead-Sangudo-Sandy Lake area; in an isolated pocket in Thunder Lake Provincial Park and in the Lac La Biche - Boyle area.

In Jasper National Park, defoliation of native white spruce was recorded in several locations. At Pocahontas, planted white spruce around the service station was severely defoliated. South from Pocahontas for 15 miles along Highway 16, there was light to moderate defoliation in scattered pockets of white spruce regeneration. Moderate defoliation was recorded at the junction of Celestine Lake Road and Highway 16, and near Cavelle Warden Station south of Jasper Townsite.

Ornamental white and Colorado spruce throughout Edmonton and Sherwood Park were moderately to severely defoliated. The incidence was particularly high in Sherwood Park.

Spruce budworm, Choristoneura biennis Freeman

This species caused light to moderate defoliation along the Vermilion River Valley in Kootenay National Park. Larval populations were lower than in 1972 from the Paint Pots south to Vermilion Crossing but higher in the area surrounding the mouth of the Simpson River.

Spruce budworm, Choristoneura fumiferana (Clem.)

This species was recorded in an isolated 50 acre stand of white spruce five miles northwest of Lacombe. Along the east side of this stand, 25 acres were moderately to severely defoliated.

Defoliation of white spruce was also recorded in northeastern Alberta in the Fort McMurray area. Moderate to severe defoliation occurred over approximately seven square miles on the west side of the Athabasca River, three miles north of Fort McMurray. On the east

slopes of the Birch Mountains in the Pierre River area, Townships 97 and 98, Ranges 11 and 12, defoliation was moderate to severe. East of Fort McMurray along the Clearwater River in Townships 89 and 90, Ranges 4 and 5, defoliation was light on the south banks of the river valley and moderate on the north.

A few larvae of this species were found in the upper Beaver Creek area of the Porcupine Hills but no serious defoliation occurred.

Spruce Beetle, Dendroctonus rufipennis Kirby

Populations of these beetles remained low in the south-west corner of the Province in 1973. In the Bow River - Crowsnest Forest only a few recently infested trees were observed during aerial and ground surveys. These were in old infestations along upper Bunny Creek, in Toronado Pass, along upper Lyall Creek, and in a few decadent old spruce in Marmot Creek watershed and the upper Kananaskis River Valley. South of Grande Prairie a moderate infestation occurred in a log deck at Mile 68, Imperial Lumber Road.

Lodgepole Pine Beetle, Dendroctonus murrayanae Hopk.

Medium populations of this bark beetle were observed infesting red belt weakened pine in residual blocks south of the Gregg River along the Luscar Road. In one block high mortality of the weakened trees was observed. Throughout the red belt damaged areas of the Coal Branch populations of this bark beetle caused some mortality. In Whitehorse Creek Campground, high populations were observed in trees severely injured by red belt. In the Obed Hills east of Hinton, low populations of the beetle continued to infest pine that had been injured by red belt in 1968.

Larch sawfly, Pristiphora erichsonii Htg.

Populations of this defoliator of tamarack were low in Alberta in 1973.

Light defoliation occurred between Edson and Obed Lake, with some moderate defoliation to individual trees. Other areas where light defoliation was recorded were: along Brule Creek east of Niton Junction, in the Sand River area east of Fork Lake, on the Great Canadian Oil Sands lease north of Fort McMurray and near Carnwood, Jarvie, Boyle and Legal.

Poplar borer, Saperda calcarata Say

Populations of this borer of trembling aspen were high throughout the agricultural area west and north of Edmonton. Damage was recorded in a number of provincial parks: severe in Thunder Lake, Pembina River, Wabumum and Garner Lake. Top flagging has occurred in severely bored trees. Light damage was recorded in Miquelon and Dilberry Provincial Parks. Low populations were recorded throughout the Peace River - Grande Prairie area.

DISEASE CONDITIONS

Shoestring Root Rot, Armillaria mellea(Vahl ex Fr.) Kummer

A mortality study in lodgepole pine regeneration was carried out in three working circles of North Western Pulp and Power lease at Hinton. Two age classes were considered, 5-10 and 11-15 years.

Mortality attributable to A. mellea in these age classes in each circle amounted to .02 and 1.26 percent in McLeod, 0 and 0 percent in Berland, 0 and 2.7 percent in Marlboro. A. mellea was also present in the red-belt weakened pine north of Marlboro, south of Hinton and in the Coal Branch area: incidence was sporadic and very little mortality was attributed to its presence. However, considerable mortality by this fungus was evident in pole-sized lodgepole pine in the upper Lusk Creek area of the Bow River Forest.

Atropellis Canker, Atropellis piniphila (Weir) Lohman & Cash

Two patches of dead and dying lodgepole pine were recorded on the east slopes of Mount Hunter and Mount King in Yoho National Park. Extensive cankering was the primary cause of the mortality with porcupine feeding contributing to some extent. As these locations are denning areas for this animal it would seem they have acquired a feeding preference for the cankered bark. No change was reported this past season in the status of this fungus along the eastern slopes of the foothills in Alberta.

White Pine Blister Rust, Cronartium ribicola J.C. Fischer

Continued deterioration of white bark pine, due mainly to infection by this rust, was evident on the slopes rising from the east side of Cameron Lake in Waterton Lakes National Park.

Spruce Needle Rusts, Chrysomyxa ledicola Lagh., Chrysomyxa weirrii Jacks, Chrysomyxa woroninii Tranz.

In Alberta, spruce foliage was severely infected by C. ledicola

over a large area bounded by Whitecourt, Cold Lake and Wandering River. The area of infection was comparable in size and severity to the outbreak that occurred farther to the west and south during 1972. Moderate to severe infections were recorded south of Barrhead, in the Lodgepole area, in Entrance Provincial Park, along Maligne Lake Road in Jasper National Park, and in the Simpson River area in Kootney National Park. Damage was light to moderate throughout Saskatoon Island, Moonshine, Lac Cardinal, Winagami and Williamson Provincial Parks and along the Simonette, Forestry Trunk, Kakwa and Two Lakes Roads.

Severe damage to spruce foliage by C. weirii was observed at Wapta Falls, Yoho National Park and along the Pass Creek Valley in Waterton Lakes National Park. Severe infections were noted on individual trees along the upper Sibbald and Stony Creeks, and near Three Isle Lake.

A further extension south and east of the previously known boundaries of C. woroninii was recorded. Numerous infected tips were observed on black spruce in an area near Swan Hills, Alberta.

Leaf spots on balsam poplar, Septoria musiva Pk. and Linospora tetraspora Thompson

Leaf drop of balsam poplar caused by a combination of these two fungi was common in the area north and east of Edmonton. Severe discoloration and early drop of foliage was recorded in the Morinville - Bon Accord, Vilna - St. Paul, Nestow - Meanook - Coolidge areas. Moderate damage was recorded in Garner Lake and Cross Lake Provincial Parks.

Climatic Damage

No known severe winter damage occurred during the winter of 1972-73. Light needle tip discoloration of lodgepole pine was observed in the following locations: along lower Lynx Creek, O'Hagen Creek, the West Castle and Oldman Rivers in the southern part of the Bow - Crow Forest, in the Teepee Pole Creek - Marble Mountain area in the northern end of this Forest and in the Blackstone Lookout area of the Clearwater Rocky Forest.

Stands that were severely demaged during the winter of 1971-72 in the Bow-Crow Forest made good recovery except in open exposed sites along timberline and in the Byron Creek Valley south of the Crowsnest Pass.

OTHER NOTEWORTHY INSECTS AND DISEASES

Organism	Host	Remarks
INSECT		
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce	Low populations in Wabamun, Moonshine, Winagami and Williamson Provincial Parks. Common in forested area of Peace River - Grand Prairie area.
Spruce gall aphids, *Adelges* spp.	W. spruce	Severely infested trees observed throughout Jasper National Park and in Thunder Lake, Little Bow, Cypress Hills, and Miquelon Provincial Parks. Light damage was common in Slave Lake - High Prairie area and in agricultural area east of Highway 2.
A flea beetle, *Altica populi* Brown	B. poplar	Low populations in Wabamun Lake Provincial Park.

Large aspen tortrix, Choristoneura conflictana (Wlk.)	T. aspen	Low populations observed in the Hinton, Edson, Tomahawk, and Grande Prairie - Peace River areas. Medium populations 6 miles south of High Level.
A budworm, Choristoneura lambertiana Bsk.	Limber pine	Light defoliation within Pincher Creek - Beaver Mines - Burmis triangle.
Birch leaf miner, Fenusa pusilla(Lep.)	Birch	Moderate damage in some areas along North Saskatchewan River in Edmonton. Notable decline in Calgary.
American aspen beetle, Gonioctena americana (Shaeff.)	T. aspen	High populations in Moonshine and Long Lake Provincial Parks and at Shuttler Flats on the Two Lakes Road. Medium populations in Sulphur Lake area west of Dixonville. Low populations in Cypress Hills, Cardinal and Hommy Provincial Parks, Red Willow County Park, and in the Edson-Hinton-Jasper areas.
Root collar weevil Hylobius warreni Wood	Lp. pine	Recorded on regeneration pine in a number of locations south of Hinton along the McLeod and Gregg Rivers and north of Edson in regenerated cut blocks. Some mortality 2 miles north of Athabasca Falls in Jasper National Park.
A bark beetle, Ips sp.	W. spruce	Moderate infestation in cut logs along Imperial Lumber Road south of Grande Prairie, in Sherman Meadows area, in blow down and logging residue in Deep Valley Creek area southwest of Valleyview; light infestation north of Hythe in the Saddle Hills and in the Eureka River - Worsely area.
Wood borer, Monachamus sp.	W. spruce	Low populations south of Grande Prairie, in the Eureka River, Clear Prairie, Deep Valley Creek areas, and at Ft. Vermillion.
Bruce spanworm, Operophtera bruceata Hulst)	T. aspen	Trace in most aspen stands. Populations down from 1972.

Poplar serpentine miner, Phyllocnistis populiella Cham.	T. aspen	Caused spectacular foliage discoloration in Yoho and Kootenay National Parks. Light damage occurred in Jasper National Park and at widely separated points throughout Alberta.
Engelman spruce weevil, Pissodes engelmanni Hopk.	W. spruce	A notable increase in the number of infested tops along the Kootenay River Valley in Kootenay National Park, and along the Nordegg River in Clearwater Rocky Forest. High populations were recorded in a tree nursery at Chip Lake. Light damage occurred generally throughout the Edson area.
Leaf tier, Pseudexentera oregonana Wlshm.	T. aspen	High populations in an area from Little Smoky north along Highway 43 for 10 miles, 6 miles south of Goodwin at Simmonette Campsite, and in the Economy Lake area. Light to moderate throughout the remainder of the Peace River - Grande Prairie area and in the aspen grove area south of Edmonton.
Gray willow-leaf beetle, Pyrrhalta decora (Say)	T. aspen Willow	Medium populations at west entrance to Jasper National Park, in Pembina River, Moonshine, Lac Cardinal, Winagami, Williamson, Hommy and Long Lake Provincial Parks.
Spruce bud midge, Rhabdophaga swainei Felt	W. spruce B. spruce	Severe terminal shoot damage west of Hinton and in O'Brien Provincial Park. Low populations throughout the Edson and Whitecourt Forests and in Winagami, Williamson, and Saskatoon Provincial Parks.

DISEASE

Apiosporina witch's broom, Apiosporina collinsii (Schw.) V. Höhnell	Saskatoon	Light in Saskatoon, Williamson and Moonshine Provincial Parks. Moderate in Miquelon Provincial Park.

Dwarf mistletoe, *Arceuthobium americanum* Nutt. ex Engelm.	Lp. pine J. pine	Moderate nine miles south of Grande Prairie. Severe brooming of Jack pine 28 miles northwest of Fort McMurray.
Black rib of willow, *Ciborinia foliicola* (Cash & Davidson) Whet.	Willow	Moderate infection throughout Chain Lakes Provincial Park.
Poplar ink spot, *Ciborinia whetzellii* (Seaver) Seaver	T. aspen	Light at Moonshine Provincial Park.
Pine needle rust, *Coleosporium asterum* (Diet.) Syd.	Lp. pine	Light to moderate on sapling pines in the Hawk Creek area of Kootenay National Park.
Stalactiforme rust, *Cronartium coleosporiodes* Arth.	Lp. pine	Moderate infection on young pine 10 miles east of Nose Mt. Tower. Severe infection along the "High Road" between Cadomin and Luscar. Light infection in Gregg River Burn southeast of Hinton.
Globose gall rust, *Endocronartium harknessii* (J.P. Moore) Y. Hiratsuka	Lp. pine	Common in most pine stands in the Grande Prairie area. High incidence at Mile 80 on the Forestry Trunk Road south of Goodwin, east of Nose Mt. Tower and at Demmitt.
Pine needle cast, *Hendersonia pinicola* Wehm.	Lp. pine	Pocket of severe infection at Mile 17 on the Celestine Lake Road, Jasper National Park.
Hypoxylon canker, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Low incidence in Moonshine, Lac Cardinal, Winagami, Williamson, Saskatoon, Dilberry Lake, Miquelon, Cross Island Lake and Cypress Hills Provincial Parks. Moderate in Garner Lake and Long Lake Provincial Parks. Severe in Thunder Lake, Wabamun Lake, Pembina River and Gooseberry Lake Provincial Parks.
Pine needle cast, *Lophodermella concolor* (Dearn.) Darker	Lp. pine	Caused moderate foliage discoloration in the Blackstone Lookout area and along lower Chungo Creek.

Needle rust of fir, Pucciniastrum epilobii Otth.	A. fir	Severe infection of regeneration fir along the Obed Tower Road north of Hinton. Moderate infection southeast of Hinton and along the Emmerson Tower Road. Low incidence common throughout foothills.
Aspen shoot blight, Venturia macularis (Fr.) E.Muell & V. Arx.	T. aspen	Light damage in Thunder Lake Provincial Park and near Edson.

NON INFECTIOUS DISEASES

Frost	W. spruce Lp. pine	Late spring frost caused moderate damage to new shoots of sapling spruce along Cutoff Creek in the Clearwater Rocky Forest. Flagging of branches of lodgepole pine regeneration and wilting of needles was recorded at scattered locations throughout the lease area of Northwest Pulp and Power.
Petroleum	All vegetation	As a result of an operational accident at an oilwell being prepared for production in the Vicary Creek Valley, all foliage on trees and ground cover was killed in a three acre area adjacent to the well. Healthy replacement foliage was produced during the summer and extensive permanent damage is not expected.

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